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ROYAL BOTANIC GARDENS, KEW.

BULLETIN

OF

MISCELLANEOUS INFORMATION.

No. 3] [1921

IX.—THE GENERA OF FUMARIACEAE AND THEIR DISTRIBUTION.

J. HUTCHINSON.

Fumariaceae is now generally recognised as a family distinct from the *Papaveraceae* proper. It is noteworthy, however, that in both Bentham and Hooker's Genera Plantarum (i. 54), and Engler and Prantl's Pflanzenfamilien (III. ii. 130), it stands as a subfamily and tribe respectively of *Papaveraceae*. As a separate family it was first described by A. P. DeCandolle in his "Systema" (ii. 105; 1821), again in the "Prodromus" (i. 125; 1824), and by Lindley in his "Vegetable Kingdom" (ed. 3, 435, 1853). Endlicher (Gen. Pl. 858; 1836) ranked the group as a subfamily. The present writer is not so much concerned as to whether the *Fumariaceae* should be regarded as a family or a subfamily.* In his opinion it is quite distinctly separated as a group from *Papaveraceae* proper, and nearly as closely allied to certain genera of *Berberidaceae*, such as *Epimedium*, *Aceranthus* and *Bongardia*. That there is close affinity with certain *Papaveraceae* is quite evident, especially with *Chelidonium* and allied genera. But it is probable that this alliance is more apparent than real, and that the *Fumariaceae* have not arisen directly from the ancestors of the present *Papaveraceae*.

In 1821 DeCandolle (ll. cc.) recognised six genera of *Fumariaceae*, (1) *Diclytra*, Borckh. (*Dicentra*), (2) *Adlumia*, Raf., (3) *Cysticapnos*, Boerh., (4) *Corydalis*, DC., (5) *Sarcocapnos*, DC., and (6) *Fumaria*, Linn. In addition to these six, Endlicher in 1836 (l.c.) gave descriptions of six more genera, namely, *Hypecoum*, Linn., *Chiazospermum*, Bernh., *Dactylicapnos*, Wall., *Phacocapnos*, Bernh., *Discocapnos*, Cham. & Schlecht., and *Platycapnos*, Bernh. Lindley in 1853 added *Capnites*, Dum., *Leonticoides*, Lindl., and *Aplectrocapnos*, Boiss. & Reut., bringing

* *See* Bernhardi, "Über den Charakter und die Verwandtschaft der Papaveraceen und Fumariaceen" in Linnaea, viii. 401–477 (1833): and xii. 651–668 (1838).

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the total up to fifteen. Bentham and Hooker (l.c.) reduced this number to seven, in which they were followed by Prantl and Kundig in Engler & Prantl, l.c. In regard to the classification of the *Papaveraceae* by the last-mentioned authors, it should be noted that their arrangement differs widely from any other proposed in that they interposed the "Papaveroideae" between the "Hypecoideae" and "Fumarioideae." As thus classified we have at the beginning of the family two genera with dimorphic petals and four stamens, in the middle a large group of genera (the *Papaveraceae* proper) with uniform petals and numerous stamens, and at the end the "Fumarioideae" with very zygomorphic flowers, dimorphic petals and six stamens united into two bundles. This classification seems unnatural, for whatever status the groups take, the "Hypecoideae" and "Fumarioideae" should undoubtedly form one principal group with further subdivision, and the "Papaveroideae" a second principal group to be dealt with likewise. This course is adopted here, after a careful examination of all the species of the two families represented at Kew, and the present account deals with *Fumariaceae*, divided primarily into two subordinate groups, *Hypecoideae* and *Fumarioideae*.

In regard to the number of genera which may be recognised, it will be seen that there is considerable divergence of opinion in general systematic works. But authors of local floras and smaller systematic papers have as a rule taken the genera in a more limited sense. Mr. Pugsley* has recently published a very careful revision of the genus *Fumaria*, from which he has separated and revised the genus *Rupicapnos*, at the same time pointing out the desirability of recognising the genera *Platycapnos*, Bernhardi, and *Discocapnos*, Cham. & Schlecht., all of which had been reduced to *Fumaria*. I agree with this recommendation, and in order to apply the same principles to the other genera of the family, the following classification is proposed. In the case of the smaller genera, I have also taken the opportunity of giving the records showing their distribution, which is presented in more graphic form on the accompanying maps. No new genera are proposed in the present paper.

Geographical Distribution.—*Fumariaceae* are most abundant in the north temperate parts of the Old World, especially around the shores of the Mediterranean and in the Himalaya-Yunnan Mountains. Central and South America, Tropical Africa (except the high equatorial eastern mountains), South India, Malaya and Australasia are entirely destitute of *Fumariaceae* excepting weeds of cultivation such as *Fumaria officinalis*. South Africa, however, has four small endemic genera, widely separated geographically from any other members of the family (*see* map, p. 105).

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* H. W. Pugsley, "A Revision of the genera *Fumaria* and *Rupicapnos*" in Journ. Linn. Soc. Bot. xliv. 233–255 (1919).

These isolated Cape genera form the most remarkable feature in the distribution of *Fumariaceae*, suggesting independent origin.

The three genera forming the distinct and most primitive group *Hypecoideae* have each a separate distribution (*see* map, p. 101). *Hypecoum* extends from South-West Europe to Turkestan and the North-West frontier of India. *Chiazospermum* occupies a more north-easterly area, from Soongaria to North-East China; whilst *Pteridophyllum* is endemic to Central Japan.

Dactylicapnos, which is here restored to generic rank, and *Dicentra* also occupy separate areas, the former from North-West Himalaya to Yunnan, the latter from Szechuan eastwards through Central China to the Eastern United States (*see* map, p. 105).

Other genera of very restricted distribution are the four that occur at the Cape of Good Hope, *Phacocapnos*, *Cysticapnos*, *Trigonocapnos*, and *Discocapnos*. *Sarcocapnos* (*see* map, p. 105) and *Rupicapnos* are confined to the Western Mediterranean, in Spain and North-West Africa, while *Ceratocapnos*, a genus of two very closely allied species, has one in North-West Africa, the other in the Holy Land. *Adlumia* has a wide range in the Eastern United States, and Professor Komarov,* a few years ago, made an interesting phytographical announcement in recording this interesting plant from Corea.

Corydalis is the most widely distributed genus of the family (*see* map, p. 109), occurring almost throughout the temperate zone of the Northern Hemisphere, but absent from Mediterranean North Africa, entering the tropic only in the mountains around Lake Victoria in Tropical East Africa, where two species have been discovered during the last few years, one, as yet unnamed, by Mr. Snowden, at 9,000–10,000 feet on Mt. Elgon, the other *Corydalis Mildbraedii*, Fedde, by Dr. J. Mildbraed in the mountains near Lake Kivu at an elevation of 7,700 feet. There is no true *Corydalis* in South Africa.

Fumaria is also widely spread in the Northern Hemisphere, but is absent from North America except as a weed of cultivation.

Key to the Genera of Fumariaceae.

Subfamily I. **HYPECOIDEAE.** Stamens 4, free, opposite the petals, the latter not very dissimilar, erect-patent; corolla actinomorphic.

Leaves much divided; peduncles 1-flowered, terminal or leaf-opposed:

Fruits not completely transversely septate, bivalvular; lateral lobes of inner petals emarginate; seeds with several flat sides - - - 1. **Chiazospermum.**

* Komarov in Act. Hort. Petrop. xxii. 343.

Fruits completely transversely septate, breaking up into 1-seeded parts or subindehiscent; lateral lobes of inner petals entire; seeds turgid; Medit. Eur. to W. China - - 2. **Hypecoum.**

Leaves pectinately pinnatisect, all radical and fern-like; inflorescence a leafless raceme; Japan - - - 3. **Pteridophyllum.**

Subfamily II. **FUMARIOIDEAE.** Stamens 6, united into two bundles; petals erect, the inner more or less connivent at the apex; corolla zygomorphic.

TRIBE I. CORYDALEAE. Fruits usually dehiscent; ovaries with two or more ovules;

*Fruits not dimorphic:

Petals not or only shortly united in the lower part:

Fruits capsular, bivalved:

Two outer petals saccate at the base:

Inflorescence leaf-opposed; climbers with tendriliform terminal leaflets: Himal. and West China - 4. **Dactylicapnos.**

Inflorescence radical or axillary; low herbs; leaves not tendriliform; W. China to N. Amer. - 5. **Dicentra.**

Only one outer petal saccate or spurred at the base, the other flat:

Leaves without tendrils (except the W. Eur. *Corydalis claviculata*); N. Hemisph.:

Flowers bracteate, usually several or many in a raceme, rarely solitary - 6. **Corydalis.**

Flower ebracteate, solitary and scapose; Turkestan - - - 7. **Roborowskia.**

Leaves more or less tendriliform; S. Africa:

Capsules compressed, lanceolate - - - 8. **Phacocapnos.**

Capsules bladder-like, subglobose - - 9. **Cysticapnos.**

Fruits small, flat, indehiscent; ovules 2; S.W. Eur. and N. Afr. - - - 10. **Sarcocapnos.**

Petals completely united below; climber; inflorescence axillary - 11. **Adlumia.**

Fruits dimorphic, the lower ones truncate, 1-seeded and indehiscent, the upper ones lanceolate, bivalved and narrowed into a beak; inflorescence leaf-opposed - - 12. **Ceratocapnos.

Tribe II. Fumarieae. Fruits indehiscent, 1-seeded; ovule solitary;

Fruits asymmetrical, winged on one side; S. Afr. - - - 13. **Trigonocapnos.**

Fruits symmetrical:

Usually perennials, nearly stemless; leaves mostly radical; inflorescence subcorymbose; fruits tubercular-rugose - - 14. **Rupicapnos.**

Annuals with elongated stems and cauline leaves; inflorescence racemose:

Fruit a more or less turgid nut; N. Hemisph.:

Outer petal spurred at the base; nut not areolate at the apex 15. **Fumaria.**

Outer petal not spurred at the base; nut with a tetragonal areole at the apex; Turkestan - - - - 16. **Fumariola.**

Fruit flattened, more or less discoid:

Flowers in terminal dense spike-like racemes; N.W. Afr. and S. Eur. - - 17. **Platycapnos.**

Flowers in lax leaf-opposed racemes; S. Afr. - 18. **Discocapnos.**

Approximate range of genera of subfamily **Hypecoideae** :—
1. *Hypecoum.* 2. *Chiazospermum.* 3. *Pteridophyllum.*

1. **Chiazospermum,** *Bernh.* in Linnaea, viii. 465 (1833).
   Flowers yellow - - - - 1. **C. erectum.**
   Flowers milky white, suffused with lilac - - - - - 2. **C. lactiflorum.**

1. **C. erectum,** *Bernh.* in Linnaea, xii. 662 (1838); Ledeb. Fl. Ross. i. 93 (1842); Turcz. Fl. Baic.-Dah. i. 101 (1842–5). *Hypecoum erectum,* Linn. Sp. Pl. 124 (1753); DC. Syst.. ii. 104 (1821); Prodr. i. 124 (1824); Fedde in Engler. Das Pflanzenr. Papaveraceae, 97 (1909).

   North Asia. Siberia: Around Lake Baikal, *Herb. Petrop.*! *Turczaninow* (1830)! Northern Mongolia: Tannu-ola, *Potanin* (1879)! Muni-ula, *Przewalski* (1871)! Chinese Soongaria: at Lake Saisang-Nor, *Herb. Petrop.*! North-East China: near Peking, *Bushwell*! *Bretschneider* 56! *David* 2348! Peking, sandy wastes near the Hunho, *Hancock* 56!

2. **C. lactiflorum,** *Kar. et Kir.* Enum. Pl. Song. in Bull. Soc. Nat. Mosc. xv. 142 (1842); Ledeb. Fl. Ross. i. 745. *Hypecoum erectum,* var. *lactiflorum,* Maxim. Enum. Pl.

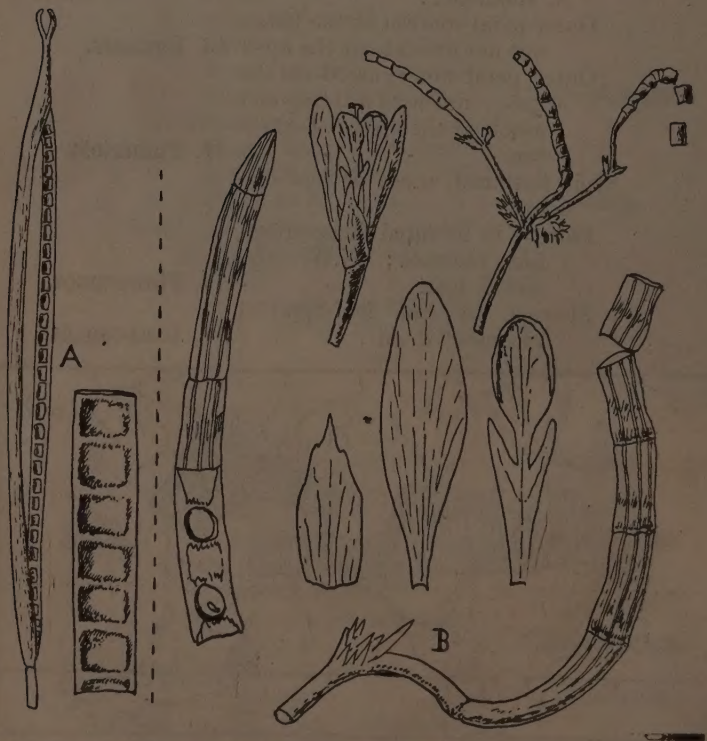

Fig. 1.—A. Capsule of *Chiazospermum erectum.* B. *Hypecoum Geslinii,* showing floral parts and dehiscence of fruits (after Cosson).

Mong. 36 (1889); Fedde in Engler, Das Pflanzenr. Papaveraceae, 97 (1909).

North Asia. Soongaria: near Arganaty Mts., *Karelin & Kiriloff* 1183! Northern Mongolia: Altai Mts., *Potanin* (1877)! Gobi Desert, *Younghusband in Herb. Calcutta* (fide Prain in Herb. Kew).

2. **Hypecoum,** *Linn.* Gen. ed. i. 32 (1837).

For revision of this genus of 14 species *see* Fedde in Engler, Das Pflanzenreich, Papaveraceae, 85 (excl. *H. erectum*, Linn.).

Distribution.—Mediterranean Europe and North Africa to Western China; *see* map, p. 101.

3. **Pteridophyllum,** *Sieb. & Zucc.* in Abh. Akad. München iii. ii. 719, t. 1 (1843). Fedde in Engler, Das Pflanzenreich, Papaveraceae, 83, Fig. 12 (1909).

P. racemosum, *Sieb. & Zucc.* l. c. 720. Stapf in Prain, Bot. Mag. t. 8743 (1918).

Central Japan. Kai Province: Mt. Komagatake, *Takeda* 13! Shinano Province, *Science Coll. Herb. Imp. University, Japan*! Nambu Province, *Tschonoski*!

Fig. 2.—*Pteridophyllum racemosum* (adapted from Bot. Mag.).

4. **Dactylicapnos,** *Wall.* Tent. Fl. Nepal. 51, t. 39 (1828). Prain in Journ. As. Soc. Beng. lxv. 11 (1896) under *Dicentra.*

Wallich's genus *Dactylicapnos,* referred by the authors of the Flora of British India to *Dicentra,* is here restored. As Prain (l.c.) has pointed out these Himalayan plants "differ widely from all the North Asian and North American forms" [of *Dicentra*]. In geographical distribution, also, the two genera do not overlap, *Dactylicapnos* being essentially Himalayan (Kumaon to the Khasia Hills and Western and Southern Yunnan), whilst *Dicentra* occupies a more northerly area from Western Szechuan (Mt. Omei) through Hupeh (Cent. China) to Kamtschatka and the Western and Eastern States of North America and Canada (*see* map). The differences between the two genera, as here understood, are shown in the key on p. 105.

* Key to the Species of *Dactylicapnos.*

Bracts elongate; capsules narrow, linear, coriaceous:
- Bracts as long as the pedicels; capsules torulose, seeds opaque - - 1. **D. torulosa.**
- Bracts shorter than the pedicels; capsules not torulose; seeds shining - 2. **D. Roylei.**

Bracts very small; capsules broad; seeds shining:
- Capsule membranous, acute at both ends, early dehiscent - - 3. **D. Macrocapnos.**
- Capsule fleshy, ovate-cordate, tardily or not dehiscent - - - 4. **D. scandens.**

1. **Dactylicapnos torulosa,** *comb. nov.*

Dicentra torulosa, Hk. f. & Thom. Fl. Ind. 272 (1855); Fl. Brit. Ind. i. 121 (1872); Prain in Journ. As. Soc. Beng. lxv. 12 (1896).

Assam. Khasia Hills: Nungklow, 1300 m., up to 10 feet high, yellow, July–August, *Thos. Lobb*! 12 October, *Hooker & Thomson*! Moleen, *Griffith* 832 (Kew Distrib. 152)! October 11, fr., *Hooker & Thomson*!

Yunnan. Yunnanfu, *Ducloux* 253! Szemao, 1500 m., fls. yellow, *A. Henry* 13361!

2. **Dactylicapnos Roylei,** *comb. nov.*

Dicentra Roylei, Hk. f. & Thoms. Fl. Ind. 273 (1855); Fl. Brit. Ind. i. 121 (1872); Prain in Journ. As. Soc. Beng. lxv. 12 (1896). *Corydalis scandens,* Franch. in Bull. Soc. Bot. Fr. xxxiii. 391 (1886); Pl. Delavay. 44 (1889), non Spreng.

North-West Himalaya. Near Nagkanda, beyond Simla, in woods 2800 m., 26 July, *Herb. J. R. Drummond* 6359! Simla, fl. September, *Lady Dalhousie*! Mussoorie, fr. 14 April, *Royle* 1040! *Falconer* (Kew Distrib. 118)!

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* This key is a copy of that published by Prain in Journ. As. Soc. Beng. lxv. 11 (1896) under *Dicentra.*

Sikkim. Choongtam, 1500 m., *Hooker*! abundant 2400–3400 m., *Hooker*!

Bhutan. *Griffith* 1748 (Kew Distrib. 153)!

Khasia Hills. Kulong, fr. 8 July, 1250 m., *Hooker & Thomson*!

Yunnan. Kichan, near Tali, *Delavay*! plains near Lichiang, 2800 m., Aug. 3, *C. Schneider* 2104!

3. **Dactylicapnos Macrocapnos,** *comb. nov.*

Dicentra scandens, Hk. f. & Thoms. Fl. Ind. 273 (1855); Fl. Brit. Ind. i. 121 (1872), non Walp. *Dactylicapnos thalictrifolia*, Wall. Cat. n. 1426/2 (1829) nec Tent. Fl. Nepal. *Macrocapnos*, Royle ex Lindl. Nat. Syst. ed. 2, 439 (1836); Royle Ill. 68 (1839). *Dicentra Macrocapnos*, Prain in Journ. As. Soc. Beng. lxv. 12 (1896).

North-West Himalaya. Kumaon: Jageren, 2000 m., *Strachey & Winterbottom*! Without definite locality, *Edgeworth* 77! Garhwal: near Badreenath, *Falconer* 119! Below Binsur, 1600 m., *Madden*!

4. **Dactylicapnos scandens,** *comb. nov.*

Diclytra scandens, D. Don. Prodr. Fl. Nep. 198 (1825). *Corydalis scandens*, Spreng. Syst. Veg. iv. 265 (1827). *Dicentra scandens*, Walp. Rep. i. 118 (1842); Prain in Journ. As. Soc. Beng. lxv. 13 (1896), which see for additional synonymy.

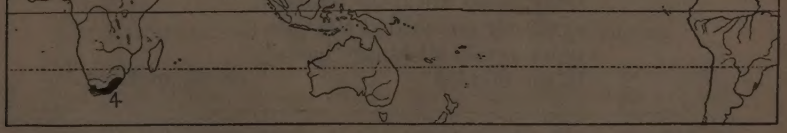
Nepal. *Wallich* 1426/1!

Sikkim. Various localities, 1000–2500 m., *Hooker*! *Hooker & Thomson*! *Clarke* 8847! 25538! 27366! 27672! *J. R. Drummond* 14832!

Bhutan. *Griffith* 1749.

Assam. Khasia Hills, about 1300 m., *Griffith* (Kew Distrib. 151)! *Hooker & Thomson*! *Clarke* 16370! *Lobb*!

Yunnan. North of Pei-Sha, 2000–2250 m., *Forrest* 838! Mengtze, 2000 m., *A. Henry* 9191!



Approximate range of 1, *Ceratocapnos*; 2, *Dactylicapnos*; 3, *Dicentra*. 4, Area in South Africa occupied by *Phacocapnos*, *Cysticapnos*, *Trigonocapnos*, *Discocapnos*.

Dicentra,* *Bernh.* in Linnaea, viii. 457, 468 (1833); Asa Gray, Synop. Fl. N. Amer. i. 93 (1895).

KEY TO THE SPECIES.

Section I. **Cucullaria.** Stemless plants with scapose inflorescence.

Series A. *Fibrosae.* Roots fibrous, long and slender; Asiatic species:

Inflorescence simple; E. Siberia - 1. **D. peregrina.**

Inflorescence branched laterally; Japan - - - - 2. **D. pusilla.**

Series B. *Repentes.* Rhizome creeping, not tuberous; N. Amer. species:

Petals united to above the middle; tips of outer petals not acuminate; Western Unit. States - 3. **D. formosa.**

Petals early separating to much below the middle; tips of outer petals acuminate; Eastern Unit. States - - - - 4. **D. eximia.**

Series C. *Tuberosae.* Tuberous rooted, or rhizome bearing small tubers; N. Amer. species:

Inflorescence several-flowered:

Flowers cordate at the base - 5. **D. canadensis.**

Flowers widely sagittate at the base:

Spurs about 8–10 mm. long; Eastern States and Canada- 6. **D. cucullaria.**

Spurs about 12 mm. long; Rocky Mt. States - - - 7. **D. occidentalis.**

Inflorescence 1–3-flowered; Western United States:

Tip of outer petals shorter than the body, remaining erect or suberect; lower part deeply pouched at the base; inner petals not hastate in the middle - - - 8. **D. pauciflora.**

Tip of outer petals longer than the body, soon abruptly reflexed, shallowly pouched at the base; inner petals strikingly hastate in the middle - - - 9. **D. uniflora.**

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* The name *Dicentra* is reserved by the International Bot. Congress of Vienna, 1905, in preference to the older names *Capnorchis*, Borckh., *Bikukulla*, Adans., *Diclytra*, Borckh., and *Dielytra*, Ch. & Sch.

Section II. **Chrysocapnos.** Caulescent and branched perennials.

Series A. *Luteiflorae.* North American species; flowers yellow, thyrsoid-paniculate:

Flowers 1·5–2 cm. long; outer petals soon spreading or recurving to below the middle; inner petals dorsally crested, with a long white crisped wing - - 10. **D. chrysantha.**

Flowers 2–2·5 cm. long; outer petals with only the tips spreading; inner petals with purple tips and large crest - - - - 11. **D. ochroleuca.**

Series B. *Speciosae.* East Asiatic species; flowers racemose or racemose-paniculate.

Outer petals recurved in the upper half, pink, deeply pouched at the base; leaflets not serrate - 12. **D. spectabilis.**

Outer petals not recurved, yellow, scarcely pouched at the base; leaflets serrate - - - 13. **D. macrantha.**

In the following enumeration of the species of *Dicentra* the detailed geography and synonymy of the American species are not given. For these the reader is referred to Asa Gray, Synop. Fl. N. Amer. i. 93 (1895).

1. **Dicentra peregrina,** *Makino* in Bot. Mag. Tokyo, xxii. 162 (1908).

Fumaria peregrina, Rudolph in Mem. Acad. Sci. Petersb. 1. 379, t. 19 (1803–6). *Dicentra tenuifolia* and *D. lachenaliaeflora,* Ledeb. Fl. Ross. i. 97 (1842).

North-East Siberia. Ajan River, *Tiliny*! Ochotsk Sea, *Wright*! Mt. Segneka, *Herb. Acad. Petrop.* 1844! Mountain top by Moikeshi Bay, Eetrup, *T. Ishikawa*!

2. **Dicentra pusilla,** *Sieb. & Zucc.* Abh. Akad. Muench. iv. ii. 172 (1843).

Japan. Top of Shiranesan, in small crater, *Roberts*! Zowozan, *Science Coll. Imp. Univ., Japan, Herb.*!

3. **Dicentra formosa,** *Walp.* Rep. i. 118 (1842); Asa Gray, l.c. 95.

Distribution.—British Columbia to Central California.

4. **Dicentra eximia,** *Torr.* Fl. N. York, i. 46 (1843); Asa Gray, l.c. 95; Britt. & Br. Fl. N. St. & Canada, ii. 143, f. 1987 (as *Bicuculla*).

Distribution.—Western New York to mountains of Virginia, North Carolina and Tennessee.

5. **Dicentra canadensis,** *Walp.* Rep. i. 118 (1842); Asa Gray, l.c. 94; Britt. & Br. Fl. N. St. & Canada, ii. 142, Fig. 1986 (as *Bicuculla*).

DISTRIBUTION.—Nova Scotia to Lake Michigan, Pennsylvania and Kentucky.

6. **Dicentra Cucullaria,** *Bernh.* in Linnaea, viii. 468 (1833); Asa Gray, l.c. 95; Britt. & Br. Fl. N. St. & Canada, ii. 142, Fig. 1985 (as *Bicuculla*).

DISTRIBUTION.—Nova Scotia to Minnesota, south to N. Carolina (mountains), Missouri and Kansas, Westward to Washington Co., Oregon.

7. **Dicentra occidentalis,** *Fedde,* Repert. x. 315 (1912).
Bicuculla occidentalis, Rydb. Bull. Torr. Bot. Cl. xxix. 160 (1902).

DISTRIBUTION.—Oregon to Washington and Eastern Idaho. I am indebted to Dr. N. L. Britton, Director of the New York Botanic Garden, for sending me a flower of this species.

8. **Dicentra pauciflora,** *S. Wats.* Bot. Calif. ii. 429 (1876); Asa Gray, l.c. 94.

DISTRIBUTION.—N. California; on Scott Mts., near snow, and at lower elevations near Castle Lake.

9. **Dicentra uniflora,** *Kellogg* in Proc. Calif. Acad. Sci. iv. 141, with Fig. (1871).

DISTRIBUTION.—Washington (Mt. Adams) to Sierra Nevada, California, and through Utah to Wyoming.

10. **Dicentra chrysantha,** *Walp.* Rep. i. 118 (1842); Asa Gray, l.c. 95.

DISTRIBUTION.—California, dry hills.

11. **Dicentra ochroleuca,** *Engelm.* in Bot. Gaz. vi. 223 (1881).

DISTRIBUTION.—Southern California.

12. **Dicentra spectabilis,** *Lem.* in Fl. des Serres, Ser. I. iii. t. 258 (1847).

DISTRIBUTION.—China: Patung District, *A. Henry* 3725! Mts. of Saimaji, Prov. of Sching-King, *Ross* 233! Chienshan *Ross* 386! Without definite locality, *Fortune* 38! Around Pekin, *Bretschneider*! Japan: near Hakodate, *Albrecht*! *Hodgson*! Commonly cultivated.

13. **Dicentra macrantha,** *Oliv.* in Hook. Icon. t. 1937 (1890).

DISTRIBUTION.—China: Hupeh; "only found in one dark wood," *A. Henry* 5846 (type)! Without locality, *Wilson* (Arn. Arb. Exped.) 1445! Szechuan: Mt. Omi, fls. yellow, rare, *Wilson* (Veitch Exped.) 4714! Without locality, 1600–2700 m., *Wilson* (Veitch Exped.) 3172!

6. **Corydalis,** *Vent.* Choix. 19 (1803). About 140 species; type: *C. sempervirens*, Pers. (*Fumaria sempervirens*, Linn.).

DISTRIBUTION.—North Temperate Zone; *see* accompanying map.

A monograph* of *Corydalis*, and especially of the numerous Chinese species, is a desideratum. For the Oriental species, *see* Boissier, Fl. Or. i. 126–132 (1867); Indian species, Prain in Journ. As. Soc. Bengal, lxv. 14–41 (1896); North American species, Asa Gray, Synop. Fl. N. Amer. i. 96 (1895).

7. **Roborowskia,** *Batalin* in Act. Hort. Petrop. xiii. 90 (1893).

Roborowskia mira, *Batalin* l.c.

NORTHERN ASIA. Turkestan: Kashgar; Kuen-Lun Mts., northern slopes of Mt. Tahtahon, 3400 m., 19 July 1889, *W. Roborowski*.

I have unfortunately not been able to see a specimen of this remarkable plant, which is described as being woody at the base, and the flower as solitary and scapose without bracts. It is, however, perhaps not distinguishable generically from *Corydalis*, which shows considerable range in habit. Dr. Fedschenko makes no mention of this genus in his numerous papers on the flora of Turkestan.

8. **Phacocapnos,** *Bernh.* in Linnaea, xii. 664 (1838).

Racemes many-flowered; stems not fleshy:

Racemes about 5 cm. long or less; leaf-segments broad - - - 1. **P. Cracca.**

Racemes over 10 cm. long, or much longer in fruit; leaf-segments narrow - - - - - 2. **P. pruinosus.**

* It is understood that Dr. Fedde is now engaged on this work for Engler's Pflanzenreich.

Racemes 1-few-flowered ; leaf-segments oblong-linear ; stems rather fleshy 3. **P. Burmannii.**

1. **P. Cracca,** *Bernh.* in Linnaea, xii. 664 (1838).
Corydalis Cracca, Schl. in Linnaea, i. 567 (1826) ; Harv. in Harv. & Sond. Fl. Cap. i. 17 (1860).

South Africa. Cape Peninsula : Newlands Woods, *Wolley-Dod* 115 ! Campsbay Hills, *Pappe* ! Paarl : roadsides, *Harvey* ! Uitenhage : Addo, *Zeyher* ! Albany : Blue Krantz, *Burchell* 3637 ! " S. Africa," without definite locality, *Drège* 7586 ! 7587 !

2. **P. pruinosus,** *Bernh.* in Linnaea, xii. 664 (1838).
Corydalis pruinosa, E. Mey. ex Harv. & Sond. Fl. Cap. i. 17 (1860).

South Africa. Clanwilliam : Kloof below Warm Baths, Oliphants River Valley, *E. L. Stevens* (Percy Slad. Mem. Exped.) 7028 ! Cape Peninsula : near Capetown, *Bolus* 4783 ! Uitenhage : Enon, waste places and in the bush, *Drège* ! Graaf Reinet : valleys of Mt. Sneeuwberg, 1100 m., *Bolus* 1964 ! " Orange River," *Burke* ! East Griqualand : scandent on shrubs in the Zuurbergen, *Tyson* 1728 ! Maclear : Tsitsa footpath, eastern slopes of the Drakensberg, *Galpin* 6569 ! Basutoland : Leribe, *Dieterlen* 873 ! Natal : woods at Zwaartskop native location, 1000–1320 m., *Medley Wood* 4597 !

3. **P. Burmannii,** *comb. nov.*

Corydalis Burmannii, Eck. & Zeyh. Enum. no. 23 (1834) ; Harv. in Harv. & Sond. Fl. Cap. i. 17 (1860).

South Africa. Vanrhynsdorp : Eenkokerboom, *Schlechter* 11060 !

9. **Cysticapnos,** *Boerh.* ex Linn. Class. Pl. 181 (1747).

C. africana, *Gaertn.* Frucht. ii. 161. t. 115 (1791) ! Harv. in Harv. & Sond. Fl. Cap. i. 16 (1860).
Corydalis vesicaria, Pers. Syn. ii. 269 (1807).

South Africa. Little Namaqualand : Khamiesberg : between Bitterfontein and Stinkfontein, climber, fls. pale mauve pink, 10 December, 1911, *H. H. W. Pearson* 6556 ! Kharkams, common, 11 December, 1911, *H. H. W. Pearson* 6682 ! Clanwilliam : *Schlechter* ! Sutherland : Little Roggeveld, 26 July, 1811, *Burchell* 1297 ! Cape Peninsula : amongst shrubs on the shores of False Bay, fr. Oct., *Bolus* 2702 ! Battery Point, Hout Bay, fls. & fr. Sept., *Wolley-Dod* 1708 ! Cape Flats, etc., *Ecklon* 21 !

10. **Sarcocapnos,** *DC.* Syst. ii. 129 (1821) (incl. *Aplectrocapnos,* Boiss & Reut.).
Largest petal scarcely spurred at the base ; corolla 5–7 mm. long - 1. **S. baetica.**

Largest petal conspicuously spurred at the base; corolla 1·5–2 cm. long:
Leaves mostly thin and more or less ovate-acute - - - 2. **S. enneaphylla.**
Leaves mostly thick and more or less reniform-obtuse or emarginate, sometimes entire - - 3. **S. crassifolia.**

For full synonymy of species of **Sarcocapnos** *see* Willkomm & Lange, Fl. Hispan. iii. 886 (1880).

1. **Sarcocapnos baetica,** *Nym.* Consp. 26 (1878).
DISTRIBUTION.—South Spain: Albacete Prov. to Malaga Prov.

2. **Sarcocapnos enneaphylla,** DC. Syst. ii. 129 (1821).
DISTRIBUTION.—Eastern Spain: Eastern Pyrenees (Villefranche) to Segovia, south to Almeria Prov.

3. **Sarcocapnos crassifolia,** DC. Syst. ii. 130 (1821).
DISTRIBUTION.—South-Eastern Spain: Valencia to the Sierra Nevada, and Central Morocco to Oran, Algeria. Type locality: Tlemsen (Algeria). The Spanish plant has been considered a variety (*speciosa*), but the integrity and thickness of the leaves is probably due only to full exposure to the sun.

11. **Adlumia,** *Rafin.* in Med. Repos. New York, v. 352 (1808).
The inflorescence of this genus is axillary and not leaf-opposed, as described by Bentham & Hooker in the Genera Plantarum.

Adlumia fungosa, *Greene*, ex *Britton, Stern & Poggenb.* Prel. Cat. 3 (1888); Britt. & Br. Fl. N. St. & Canada, ii. 143, f. 1988.

Fumaria fungosa, Ait. Hort. Kew. iii. 1 (1789).
A. cirrhosa, Raf. l.c. (1808).

Distribution.—Eastern Canada to Tennessee and in Corea. Eastern Canada: "Lake Region and Ontario," *Macoun* 83! Rocky woods, Herly Falls, Seymour, Northumberland Co., very rare, also North Hastings, *Macoun*!

E. United States: Vermont; Charlotte, rich rocky woods, *C. G. Pringle*! Pennsylvania: mountains, *W. Darlington*! *T. Nuttall*! Massachusetts: Taconic Hills, Williamstown, *J. R. Churchill*! Tennessee: mountains above Warmsprings, *Rugel*!

Corea: River Tumin-gan, Musang District, 13 June 1897, *Komarov* 747!

12. **Ceratocapnos,** *Dur.* in Parlat. Giorn. Bot. Ital. i. i. 336 (1844).
Lower indehiscent fruits with 5 straight ribs on each side (as in Fig. 3 C);
Asia Minor - - - - 1. **C. palaestina.**

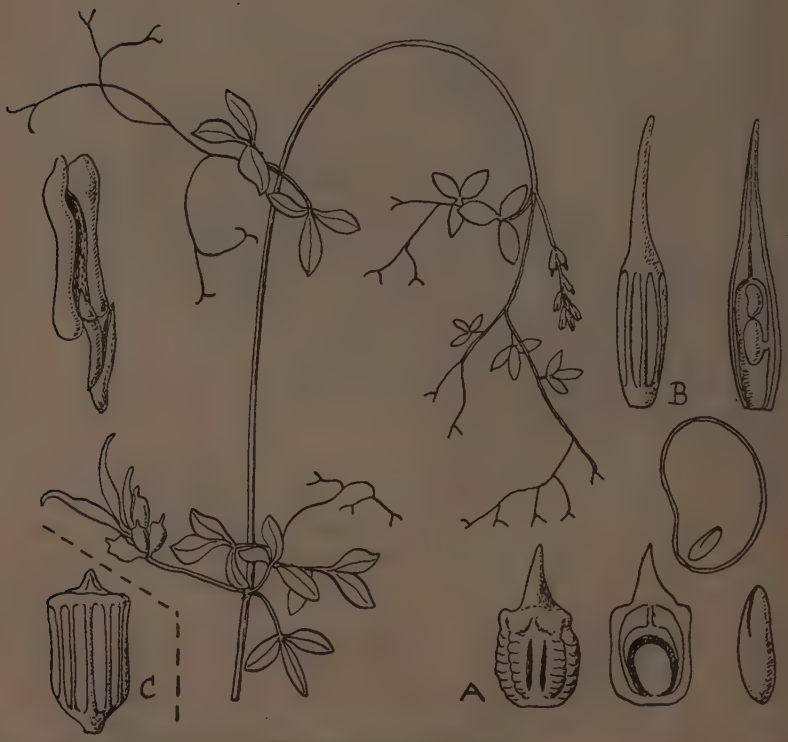

Fig. 3.—*Ceratocapnos heterocarpa*, Dur., showing:
A. The lower 1-seeded indehiscent fruits, and
B. The upper lanceolate bivalved capsules (after Durieu).
C. Lower indehiscent fruit of *Ceratocapnos palaestina*, Boiss.

Lower indehiscent fruits more or less wrinkled (as in Fig. 3 A); N.W. Africa - - - - 2. **C. heterocarpa.**

1. **Ceratocapnos palaestina,** *Boiss.* Diagn. Pl. Or. viii. 12 (1849); Fl. Or. i. 132 (1867); Post, Fl. Syria, Palestine & Sinai, 55 (1896).

PALESTINE: Beirut: *Ehrenberg! Mitchell! Fox!* Road between Saida and Raboutie, *Gaillardot* 53! Nazareth, *Lowne* 350! Magdala, damp shady places, *Meyers & Dinsmore* 8350! Without definite locality, *Boissier! Pinard! Hayne!*

SYRIA: Jerash, *Meyers & Dinsmore* G. 350!

According to Post, l.c., this species flowers from February to May, and is found in hedges and amongst rocks in the Coast range and maritime plains of Syria and Palestine.

2. **Ceratocapnos heterocarpa,** *Dur.* in Parlat. Giorn. Bot. Ital. i. i. 336 (1844).

NORTH-WEST AFRICA. Morocco: Mogador, *Lowe* 171! Mardochee, *Cosson*! in a hedge at Ain-el-Hadjar, *Miss Bainbridge*! Algeria: Oran, near the Spanish Battery, *Kralik* 3a! *Mumby* 17! *Balansa* 622! Mostaganem, *Balansa* 160! near Lalla-Maghnia, *Wariau*! near Cape Carbon, *Cosson*! Hort. *Durieu*!

13. **Trigonocapnos,** *Schlechter* in Engl. Bot. Jahrb. xxvii. 131 (1900).

Trigonocapnos curvipes, *Schlechter*, l.c.

SOUTH AFRICA. Clanwilliam: *Schlechter* 8525 (type)! Near Wupperthal, Koudeberg, 750 m., *Bolus* 8920! Hills at Agtertuin, *Schlechter* 10869!

14. **Rupicapnos,** *Pomel.* Mat. Fl. Atlant. 16 (1860). 20 species; type: *R. corymbosa*, etc. Revision by Pugsley in Journ. Linn. Soc. Bot. xliv. 328 (1919).

DISTRIBUTION.—North Africa, Tunis to Morocco, one species in Andalusia, Spain.

15. **Fumaria,** *Tourn.* ex Linn. Syst. ed. i. (1735).—46 species; type: *Fumaria sempervirens*, L. Revision by Pugsley in Journ. Linn. Soc. Bot. xliv. 233 (1919).

DISTRIBUTION.—Europe, N. Africa, Temperate Asia; elsewhere as weeds of cultivation.

16. **Fumariola,** *Korshinsky* in Bull. Acad. Sci. St. Petersb. ser. v. ix. 403, t. 1 (1898).

Fumariola turkestanica, *Korshinsky*, l.c. 404.

NORTHERN ASIA. Turkestan: Fergana Province; near Liangar, *Korshinsky*.

This is evidently a very remarkable type of the *Fumariaceae*, which I know only from Korshinsky's

description and figure. One might regard it as a primitive representative of the Fumariceae, because the outermost petal is not at all spurred, and the fruit has a curious quadrangular areole at its apex. Korshinsky does not give the altitude on the Thibetan Plateau where the plant was collected, but it is evidently a considerable one.

17. **Platycapnos,** *Bernh.* in Linnaea, viii. 471 (1833); Willk. & Lange, Fl. Hisp. iii. 885 (1880), which see for further synonymy.

Leaf-bases not persistent at the base of the stems; flowering stems leafy; bracts lanceolate, acuminate - 1. **P. spicatus.**
Leaf bases persistent at the base of the stems; flowering stems leafless or nearly so; bracts ovate - - 2. **P. saxicola.**

1. **P. spicatus,** *Bernh.* l.c. (type species); Willk. & Lange, l.c. *P. Echeandiae,* Pau, Not. Bot. Fl. Espan. ii. 6 (1889).

DISTRIBUTION.—Mediterranean (up to 1300 m.) from Portugal eastwards to Italy, and in North Africa and Canaries.

2. **P. saxicola,** *Willk.* in Bot. Zeit. 1848, 367; Willk. & Lange, l.c.

DISTRIBUTION.—South Spain: Huescar Province at high altitudes (2000–2300 m.) in the Sierra Sagra. Morocco: Djebel Ghat, Demnat Province.

I have not seen the following species, which are, perhaps, doubtfully distinct from *P. spicatus*:—

Platycapnos tenuilobus, *Pomel* Fl. Atlant. 240 (1874); Algeria; Garrouban, Mazis.

Platycapnos grandiflorus, *Rouy.* in Rev. Sc. Nat. Ser. iii. i. 66 (1883); Spain.

18. **Discocapnos,** *Cham. & Schlecht.* in Linnaea, i. 569 (1826); Harv. in Harv. & Sond. Fl. Cap. i. 18 (1860).

1. **Discocapnos Mundtii,** *Cham. & Schlecht.* l.c.; Harv. l.c., excl. var. *Dregei,* Harv.; Harv. Thes. t. 10.

SOUTH AFRICA. Cape Division: Hills around Cape Town, *Mundt & Maire.* Platteklip, *Pappe*! Devils Mt., *Ecklon* 24! near Rondebosch, *H. Bolus* 4797! Newlands Woods, fl. & fr., Aug. *Wolley Dod* 114! "Cape," *Harvey*!

2. **Discocapnos Dregei,** *Hutchinson,* sp. nov.; a *D. Mundtii,* Cham. et Schlecht., foliorum segmentis angustioribus, racemis multifloris gracilibus, fructibus minoribus minute et parce puberulis elliptico-rotundatis alis angustissimis differt. *Discocapnos Mundtii,* var. *Dregei,* Harv. l.c. ***Fumaria scandens,*** Drège, Zwei Pfl. Docum. 125, *nomen.*

South Africa. Knysna Division: Bosch River, between the "Bush" and the river, below 140 m., fl. & fr., Oct., *Drège*!

X.—RAVISON AS A COMMERCIAL TERM.

L. A. Boodle.

Though the word "Ravison" has been introduced into England from France, it is not to be found in Littré's Dictionnaire de la Langue Française, and therefore appears not to be recognised among the current French names of plants.

Rolland (Flore Populaire, 1899) gives numerous popular names applied to species of *Brassica* and *Sinapis* in France. Of these, ravasson and ravoss' show the nearest approach to the word ravison, and both are used to designate *Sinapis arvensis*, L. (Charlock). Rolland notes, by way of authority, that he met with the name ravasson in Corbigny, and ravoss' in Chambéry, the use of both words depending on oral tradition. This localisation suggests that the employment of these names may be somewhat restricted.

Several Italian words cited by Rolland are apparently related to "ravison." Three of these, ravizzone, ravissòn* and raviscion, are placed under *Brassica Napus* (var. *sylvestris*), by which *Brassica campestris* var. *autumnalis*, DC. (*B. Rapa* var. *oleifera*, DC., *i.e.*, Winterrübsen, sometimes called Wild Turnip or German Rape) is presumably intended.† Ravizzone is listed as an Italian word,‡ while ravissòn and raviscion are quoted as belonging to the Genoese and Milanese dialects respectively.

For *Brassica Napus* var. *oleifera*, DC.§ (Rape), the following are among the Italian names quoted by Rolland:—ravizzioni (Italian, 1805), raviscion and ravizzon (Milanese), ravizon (Treviso), ravazzon (Verona), ravizzon and ravizze (Friuli). Further, under *B. campestris* (L.) ravissun (Piedmont) is cited. All these appear like variants of the same word, and it is to be noted that in the Milanese dialect precisely the same word (raviscion) is applied to varieties of both *B. Rapa* and *B. Napus*. It is probable that some of these names are used loosely, for instance for rape or for other plants resembling it.

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* Rolland writes this word with a circumflex over the last vowel, but the orthography should probably be ravissòn.

† Among the names Rolland gives for *B. Napus* (var. *sylvestris*) are:—navette and navette dauphinoise (French), Rübsen and Rübsat (*i.e.*, Rübsaat; German).

‡ Ravizzone appears also in the following Dictionaries:—Targioni Tozzetti, Diz. Bot. Ital., 1825; Cazzuola, Diz. di Bot., 1876; Davenport and Baretti's Ital. Dic. The meanings given are:—(1) *Brassica Napus*, *sylvestris*; (2) *B. Napus*, L. (3) a variety of cabbage.

§ Written by Rolland:—*Brassica Napus* (L.) var. *oleifera*; and made a synonym of *B. Napus* var. *biennis*, Reichb. in Engler's Pflanzenreich.

The word ravison, as a commercial term applied to oil-seed in England, appears to be subject to considerable elasticity of employment. Simmonds (Handbook of British Commerce, 1898) defines ravisons as the French name for rape seed, while Laucks (Commercial Oils, 1919, p. 57), in writing of rape-oil, mentions that allied seeds, such as ravison and mustard, sometimes are mixed unavoidably with rape-seed. Here ravison does not signify rape, but evidently implies the seeds of certain other plants growing among a crop of rape. Bolton and Revis (Fatty Foods, 1913, p. 212) state that ravison oil is derived from the seeds of a wild variety of *Brassica campestris* from the Black Sea district. A sample of seed in the Museum at Kew, received under the name of Black Sea Wild Rape, may be classed as ravison, and is probably the type of seed intended in the above quotation from Bolton and Revis. The sample has been found to consist chiefly of Charlock (*Sinapis arvensis*, L.) together with some " Sarepta Mustard " and other seeds.

A letter received last year by the Director of the Royal Botanic Gardens, Kew, from Prof. D. Bois, gives the information that in France the name Ravison is used to denote the seeds of different species of *Sinapis* imported into Marseilles and other ports, oil being extracted from the seeds and employed for different purposes, notably for the manufacture of soap. Prof. Bois adds that these seeds come principally from the Orient, and that they apparently consist chiefly of *Sinapis arvensis*, *S. dissecta*, *S. juncea*, &c. A particular region of the Orient is indicated by the mention of *Sinapis dissecta*, which is cultivated in South Russia, and is often found in considerable quantity in " rape-cake " of Russian origin.* The *S. juncea* referred to by Prof. Bois may therefore be described as " Sarepta Mustard," this name being given to a species of *Brassica*, which is cultivated in Southern Russia, and is described either as *B. Besseriana*, Andrz. or *B. juncea*, L. The first of these two names appears in Engler's Pflanzenreich (Heft 70; iv. 105, p. 55) as a synonym of *B. juncea* (L.) Czern. et Coss. (Chinese and Indian Mustard). It may be mentioned here however that Kinzel (loc. cit., p. 184) retained the name *B. Besseriana* for Russian Sarepta Mustard, holding the latter to be distinct from *B. juncea*, and noted that the mucilaginous epidermis of the seed showed distinct cellular structure, a character which he did not find in any of the forms of Indian Mustard (*B. juncea*) examined by him.†

The use of the word ravison in France, as explained by Prof. Bois, is thus not confined to the seed of a single species of *Brassica* (incl. *Sinapis*), but is applied rather to a mixture of seeds, of which Charlock may be one, and " Sarepta Mustard " another. " Black Sea Wild Rape," being of similar composition,

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* Kinzel, Landw. Versuchs-Stationen, vol. 52 (1899), p. 185.

† This difference was verified in the case of two samples in the Kew Museum, namely seeds of " Sarepta Mustard " from Black Sea Wild Rape, and seeds of *B. juncea* from Dharwar, India.

may be described as ravison, and moreover proved to agree well in its constituents with a sample of ravison with which it was compared.

Some information concerning ravison is contained in an article by Rothéa,* who remarks that in certain countries, such as Southern Russia and the Danubian Provinces, Charlock is specially harvested, and is even the object of an important culture, the seed arriving in France under the name of ravison. He adds that, in the exotic countries which produce it, ravison is generally harvested with very little care, and contains a great variety of foreign seeds. One may, therefore, say that in ravison as imported into France, Charlock is the crop-seed, and that the other components are accidentally present as weed-seeds. Rothéa proposes to apply the name ravison also to seed of Charlock gathered in France, where however it is very rarely harvested.

Rothéa gives chemical analyses of ravison and of oil-cake obtained from the seed, refers to cases of intestinal irritation occurring among animals fed with the cake, and describes some table-mustard prepared from the seed as resembling that made from the seed of White Mustard.

It is interesting to note that, though ravison is imported into Marseilles, etc., for the extraction of a commercial oil, the stipulation is sometimes made by crushers in Antwerp that oil-seed supplied to them shall be free of ravison. The explanation apparently depends on the particular use to which the oil is to be put.† Thus Bolton and Revis (loc. cit., p. 212) state that ravison-oil forms an adulterant of rape-oil, and that its uses are practically those of rape-oil, but that it is not so suitable for lubricating purposes.

To return to linguistic matters, the fact that ravissòn is a Genoese word, and is practically the same as the French name ravison, may possibly have some significance, Genoa being, perhaps, in some cases a port of trans-shipment for Black Sea produce on its way Westward to France. Though ravissòn is applied to *B. Rapa* var. *oleifera*, DC., it may, perhaps, be used also as a commercial term for oil-seeds of more than one kind, in a similar way to " rape " in its extended sense.

Assuming that some imported ravison may occasionally have been sown as a crop in France, the local application of the word ravasson to Charlock (mentioned by Rolland, and quoted above) might be explained, since Charlock would presumably prove to be the predominant plant in the crop, ravasson, on this supposition, being regarded as a variant of ravison.

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* Rothéa, La graine de moutarde des champs ou ravison, et les produits qui en dérivent. Bull. des Sciences Pharmacologiques, vol. 26 (1919), pp. 16–20. References to two earlier papers by other authors dealing with the seed and cake of ravison are given.

† Or, perhaps, in some cases the stipulation referred to might depend on the intended use of the oil-cake as cattle-food.

XI.—DECADES KEWENSES.

PLANTARUM NOVARUM IN HERBARIO HORTI REGII CONSERVATARUM.

DECAS CII.

1011. **Berberis pseudumbellata,** *Parker* [Berberidaceae-Berbereae] ; *B. virescenti*, Hook. f., affinis, sed fructu obovoideo vel subgloboso atro-coeruleo distincta.

Frutex 2 m. altus, ramulis gracilibus subangulatis glabris ; spinae 1–3-fidae. *Folia* oblanceolata vel spathulata, apice rotundata, basi in petiolum attenuata, 1·5–3 cm. longa, integra vel brevispinoso-serrata, membranacea, subtus pallidiora, obscure papillosa ; petiolus 0·3–1 cm. longus. *Racemi* subcorymbosi, 3–5 flori ; pedunculi 0·5–1·5 cm. longi. *Flores* pallidi, flavi ; pedicelli 0·6–1·2 cm. longi. *Sepala* externa elliptica, 3 mm. longa. *Petala* obovata, basi nectariis duobus instructa, 6 mm. longa. *Stamina* ovarium aequantia. *Ovarium* 3-ovulatum ; stylus brevissimus. *Fructus* obovoideus, deinde subglobosus, pruinosus, 1 cm. longus ; stylus subnullus ; stigma magnum. *Semina* 1–3. *B. vulgaris* var. *brachybotrys*, Hook. f. et Thoms., Fl. Ind. i., 220 ex parte, non *B. brachybotrys*, Edgew. *B. orthobotrys*, C. K. Schneider in Bull. Herb. Boiss. sér. 2, v, 662 ex parte, non Bienert in Herb. Bunge.

INDIA. N.W. Himalaya, 2400 m., Ulansa, Ravi Valley, Chamba State, 17.8.1920 (fruit) and 3.5.1920 (flowers), *R. N. Parker.*

The following sheets in Herb. Kew. belong to this species : Kashmir ; 3500 ft. and 5300 ft., *Thomson* ; Herb. *Falconer* 98 ; *Hunter-Weston* 10158 ; *Clarke* 24214 : Simla ; Narkanda, *Brandis.*

This species is common in the Kagan Valley, Hazara ; Bharmaor and Pangi, Chamba ; Lahul and Kunawar.

1012. **Wercklea lutea,** *Rolfe* [Malvaceae-Hibisceae] ; a *W. insigni*, Pitt. & Standl., pedicellis pubescentibus, calycis lobis latioribus et floribus luteis differt.

Arbor 5–6·5 m. alta. *Ramuli*, petioli et pedunculi dense stellato-pubescentes. *Folia* longe petiolata ; limbus cordato-suborbicularis, repando-undulatus, subcoriaceus, 7-nervis, distanter denticulatus, 15–20 cm. longus, 17–23 cm. latus, subtus dense stellato-pubescens, supra sparse stellato-pubescens ; petioli 10–12 cm. longi. *Pedunculi* solitarii, 7–13 cm. longi. *Flores* magni. *Involucra* cupulata, 2–3-loba, 3 cm. longa ; lobi ovati, subacuti, concavi, stellato-pubescentes. *Calyx* campanulatus, 4 cm. longus, breviter 5-lobus, dense hirsutus ; lobi triangulari-ovati, subobtusi, circiter 1 cm. longi. *Corolla* 10–11 cm. longa, anguste campanulata ; petala spathulato-obovata, lutea. *Columna* staminalis circiter 8 cm. longa ; antherae numerosae, oblongae. *Stigmata* capitata. *Capsula* 5-angulata, 5–6 cm. longa, sublignosa, longe

hirsuta ; semina numerosa, ellipsoidea, subcurvata, longe hisruta, circiter 4 mm. longa.

Costa Rica. Las Nutes, Cascajal River, 2100 m., *C. H. Lankester*.

Mr. Lankester, who brought home both flowering and fruiting specimens, remarks that this tree occurs sparingly along the ravine of the Cascajal River, and in some of the ravines just beyond his Cascajal farm. It bears a general resemblance to the original *W. insignis* (of which ample materials were also collected at Cascajal), but it is of somewhat smaller stature, and the flowers do not open so widely, while the petals are lemon yellow or bright canary yellow instead of lilac rose. The genus is at present only known from Costa Rica.

1013. **Cotoneaster obovata,** *Wall. MS.* in Herb. propr. *ex Dunn* [Rosaceae-Pomeae], a *C. rosea*, Edgew., foliis ellipticis obtusis subtus persistenter tomentosis differt.

Frutex deciduus, ad 3 cm. altus. *Caules* longe arcuantes, superne paullo ramosi ; cortex rubescens, tandem griseus. *Folia* exacte elliptica, apice basique obtusa, ad 10 cm. longa, 7 cm. lata, chartacea, supra mox glabra, subtus ut ramuli novelli, petioli, pedicelli, calyces, petalorum bases et ovaria dense griseo- vel albo-tomentosi. *Flores* 1 cm. diametro rubidi. *Calycis* tubus intra glaber, 3 mm. longus ; lobi 2 mm. longi, acuminati. *Petala* spathulata, 3 mm. longa, erecta vel patula. *Stamina* 18–20. *Ovaria* 2. *Poma* pyriformis, tandem rubra, 8 mm. diam.

India. N.E. Punjab : Kangra, Chandaghery, *Wallich* ; Chamba from 2300–3700 m., common in the Urnu, Pontu, Kagal, Rangi, Chota and Bara Bambal forest reserves. Flowers in June and July, fruit in December. *Ellis* 75, 1192 ; *Parker* 18–23.

Mr. Parker writes that it is a plant of forest undergrowth, affecting (for Pangi) rather moist places. It usually sends up a simple stem, which gets pressed down by the snow, a fresh shoot taking its place. Occasionally on rocky ground it forms a small thicket 2–3 ft. high. Large, flowering plants are rare. The petals at low elevations are usually spreading, but higher up are upright.

1014. **Spiraea hypoleuca,** *Dunn* [Rosaceae-Spiraeeae] ; *S. hypericifoliae*, Lam., affinis, sed foliis apice saepius 3-lobatis subtus albis, pedicellis bracteisque sericeis differt.

Frutex parvus, ramosus, ramis longis gracilibus striatis, cortice rubro. *Folia* obovato-lanceolata, apice saepius paucidentata vel trilobata, basi cuneata, 15–20 cm. longa, mox glabra, subtus alba, papyracea, plana ; petioli ad 8 mm. longi. *Flores* albi, 7–8 mm. diametro ; pedicelli graciles, 10–15 cm. longi, ut bracteae et bracteolae caducae calycesque primo sparse sericei, plurimi in nodis approximatis fasciculati, nonnunquam parce ramosi et ita corymbos formantes. *Calyx* urceolatus, 2 mm. longus ; dentes breves, obtusi. *Petala* spathulata, 2·5 mm. longa, patula. *Stamina* indefinita. *Ovaria* 6–8, sparse sericea. *Carpella* 4–5, fere glabra.

India. Garhwal: rocks in Dombitia Gadh, 2300–3000 m., *Duthie* 3965; Kanol, *Osmaston* 1064 (in part), 1065.

1015. **Ducrosia ovatiloba,** *Dunn et R. Williams* [Umbelliferae-Peucedaneae] a *D. anethifolia*, Boiss., laciniis ovatis, umbellae radiis 3–5 distincta.

Herba perennis (?), gracilis, 30–40 cm. alta, superne nuda, omnino minute puberula. *Caulis* striatus. *Folia* pinnatim triternata, ambitu rotundato-ovata, ad 10 cm. longa; petiolus 5 cm. longus, basi breviter vaginatus; segmentorum laciniae ovatae, trilobae, apice rotundatae, 1–2 cm. longae, paucicrenatae, laterales sessiles, terminales rotundatae, petiolulis 1 cm. longis. *Umbellae* in paniculam dispositae, longe pedunculatae, bracteis paucis parvis linearibus; umbellulae 3–5, radiis 2–3 cm. longis suffultae, multiflorae, bracteolis pluribus parvis linearibus. *Flores* 2 mm. lati. *Petala* obovata, integra, cum lacinula inflexa. *Fructus* a dorso plano-compressus, margine tumido laevi semini contiguo cinctus. *Mericarpia* jugis 5 tenuiter filiformibus aequidistantibus, lateralibus margini dilatato contiguis. *Semen* planum. *Vittae* in valleculis solitariae, comissurales binae, arcuatae. margini contiguae.

India. Chitral: Ziarat; 2000 m. July 1908, *Toppin* 452. *Ducrosia* as previously known, consisted of one species limited to Persia and the immediate surroundings of that country. Four species have indeed received the same generic name but *D. flabellifolia*, Boiss. of which mature fruit is not known is probably not a *Ducrosia* at all and *D. Ismaëlis*, Aschers, certainly not. *D. Olivieri*, Boiss. (reduced by its author to his *D. anethifolia*) and some other forms comprised a fairly uniform group under the latter name; but it will possibly be broken up into three or four species when more material is available. The present example while agreeing perfectly in its fruit, is aberrant in the other characters enumerated above. It therefore amplifies the limits of *Ducrosia* as previously defined both morphologically and geographically.

1016. **Emilia ramulosa,** *Gamble* [Compositae-Senecionideae]; species capitulis solitariis longe pedunculatis, foliis linearioblongis vel spathulatis vix auriculatis subtus lanugine crispato-hirsuto tectis insignis.

Suffrutex humilis, ramulosus, ramulis gracilibus aliquando longissimis. *Folia* lineari-oblonga vel spathulata, apice obtusa, basi attenuata non vel aliquando brevissime auriculata, marginibus integris vel leviter sinuatis recurvis, supra glabra, subtus lanugine crispato-hirsuto tecta, 2–7 cm. longa, 1–1·5 cm. lata, nervis obscuris; petiolus brevissimus vel nullus. *Capitula* solitaria, longe pedunculata, ad 1·5 cm. longa et lata, multiflora. *Bracteae* 7–8, oblongae, glabrae, 1 cm. longae; bracteolae nullae. *Receptaculum* nudum. *Corollae* infundibulares, 4 mm. longae; lobi anguste lineares, 3 mm. longi, apice brevissime puberuli. *Styli* rami teretes, apice dilatati, puberuli. *Achaenia* 5-angulata, 3 mm

longa, oblonga, ad angulos brevissime scabra ; pappus brevis, albus, sericeus.

South India. Attraymallay hills : Travancore ; 1580 m., *R. H. Beddome* (*Herb. Madr.*) ; Agastiamalai, Tinnevelly, May 1901, *C. A. Barber* 2930 ; Kalivayalpil, Tinnevelly, June 1901, *C. A. Barber* 3053.

1017. **Ardisia Blatteri,** *Gamble* [Myrsinaceae Eumyrsineae] ; *A. pauciflorae*, Heyne, et *A. rhomboideae*, Wight, affinis, foliis eximie nervosis marginibus conspicue crenato-serratis insignis.

Frutex erectus, ramulis teretibus, ultimis ferrugineo-villosis. *Folia* elliptico-lanceolata vel oblanceolata, chartacea, punctata, apice caudato-acuminata, basi longe et cuneatim attenuata et in petioli margines decurrentia, margine crenato-serrata, 6–10 cm. longa, 2–3·5 cm. lata ; costa conspicua, supra profunde impressa ; nervi utrinque 10–20, irregulares, conspicui, supra impressi, marginem versus arcuatim juncti et nervulis multis intermediis aucti ; petiolus circiter 1 cm. longus, alatus. *Cymae* axillares, subumbellatae, ad 3 cm. longae, ferrugineo-villosae ; pedunculus gracilis, 2 cm. longus ; pedicelli graciles, brevissimi ; bracteae et bracteolae subulatae. *Calycis* lobi minimi, patentes, nigro-punctati et margine glandulosi. *Corollae* lobi ovati, acuti, rosei, eximie nigro-punctati, 3 mm. longi. *Antherae* ovatae, acuminatae, dorso nigro-punctatae. *Stylus* gracilis, subulatus, persistens. *Bacca* globosa, nigra, glabra, 4–5 mm. diametro.

S. India. Madura District : " High Wavy Mountain " ; near Cumbum, May 1917, 1300–1700 m., *Blatter and Hallberg* 3. 251, 552, 564. Hills of Travancore in moist forests, 700–1300 m., *T. F. Bourdillon*, February 1887, " a shrub 15–20 ft. high, 4–6 in. in diameter " ; *T. F. Bourdillon* 14 is probably the same species, but the leaf-nervation is less conspicuous.

1018. **Bassia Bourdillonii,** *Gamble* [Sapotaceae] ; species decidua, floribus subterminalibus fulvo-tomentosis, foliis longis membranaceis oblanceolatis brevissime petiolatis ad apices ramulorum conspicue confertis insignis.

Arbor mediocris, decidua, ad 20 m. alta, 40–50 cm. trunci diametro, ramulis rugosis crassissimis. *Folia* membranacea, ad apices ramulorum densissime conferta, oblanceolata, apice acuta, basi in petiolum attenuata, supra glabra, subtus (et aliquando juventute supra) ad costam et nervos fulvo-lanata, 20–30 cm. longa, 6–10 cm. lata ; costa crassa, supra impressa ; nervi primarii utrinque 20–25, primum recti, deinde prope marginem curvati, nervulis transversis et reticulatione inconspicuis ; petiolus ad 1 cm. longus, crassus, dense fulvo-tomentosus. *Flores* pedicellati, ad apices ramulorum conferti, bracteis brevissimis lanceolatis suffulti ; pedicelli fulvo-tomentosi, circiter 2 cm. longi, patentes vel haud conspicue nutantes. *Calycis lobi* ovati, acuti, fulvo-tomentosi, 7–10 mm. longi. *Corollae* tubus carnosus, 5 mm. longus, glaber ; lobi 12, oblanceolati, 7 mm. longi, lutescentes. *Stamina* circiter 24 ; antherae glabrae, basi cordatae, longe

apiculatae. *Ovarium* ovoideum, fulvo-villosum, stylo crasso longissimo. *Fructus* (teste *Bourdillon*) ovoideus, viridis, 3–4 cm. longus. *B. fulva*, Bourdillon, Forest Trees of Travancore, p. 238, *not of* Bedd.

S. India. Evergreen forests of South Travancore: in the Ariankavu and Shendurni valleys; about 300 m. *T. F. Bourdillon* 386, 533, 842.

1019. **Teucrium Toppinii,** *Dunn et R. Williams* [Labiatae-Ajugoideae] a *T. Stocksiano*, Boiss., floribus majoribus et bracteis foliaceis multis differt.

Suffrutex; caulis ramosus, 20 cm. altus, ut folia bracteaeque breviter canescenti-velutinus. *Folia* sessilia, obovata, basi cuneato-attenuata, 1·2–1·5 cm. longa, fere 1 cm. lata, in dimidio superiore conspicue crenata. *Verticillastri* pauci, multiflori, in capitula terminalia bracteis involucrata conferti; bracteae multae, crenatae; bracteolae integrae, ut calyces laxe hirtae. *Calyx* tubuloso-campanulatus, 10-nervis, 5-dentatus; dentes subaequales, apice paullo denticulati. *Corolla* luteola; tubus calyci aequilongus, 8 mm. longus; limbus unilabiatus; labium superius nullum; inferius 5-lobum, nervis purpureis notatum, 8 mm. longum et latum. *Stamina* e tubo longe exserta; filamenta ad corollae faucem adnata. *Stylus* bifidus.

N.W. India. Chitral, *Toppin* 313. The section *Polium* to which this species belongs, has hitherto not been found to occur further north in India than Peshawar.

1020. **Dracocephalum glechomifolium,** *Dunn*, [Labiatae-Nepeteae] a *D. imberbi*, Bunge, capitulis laxe lanatis haud involucratis, corollis decurvatis differt.

Herba ascendens, circiter 30 cm. alta, breviter ramosa, supra densius, infra laxius lanata. *Folia* caulina late ovata, 1·5–2 cm. longa, apice rotundata, basi subcordata, in petiolum aequilongum subito attenuata, regulariter crebreque crenata, utrinque conspicue nervosa, pauciglandulosa. *Verticillastri* 6–10-flori, 2–4 in spicam globosam terminalem 5–7 cm. diametro congesti, nonnunquam uno paullo distante; bracteae bracteolaeque lineari-lanceolatae vel lineares, membranaceo-marginatae. *Flores* 1·8–2·3 cm. longi. *Calyx* tubulosus, bilabiatus, 1 cm. longus, pallidus, nervis 15 viridibus ornatus; labii superi dentes 3 anguste triangulares, 3 mm. longi, inferi similes, vix ad sinus superiorum attingentes. *Corolla* luteola, ut calyx albo-hirta; tubus exsertus, inferne anguste tubulosus, superne ampliatus, fauce nudus; labia hiantia, superum oblongum, erectum, bilobum, 3 mm. longum, inferum late ovatum, trilobum, 4 mm. longum, medio hirtum, basi in sinu utroque recurvum. *Stamina* 4, sub labio supero inclusa, 2 superioria altera excedentia. *Stylus* bifidus. *Nuculae* maturae non visae.

N.W. India. Chitral: Madaglast; 4200–4500 m., *Toppin* 564.

XII.—MISCELLANEOUS NOTES.

James Ramsay Drummond.—We regret to announce the death of Mr. James Ramsay Drummond, B.A., F.L.S., late of the Indian Civil Service, at 119, Twyford Avenue, North Acton, on the 11th of March.

Mr. Drummond was born in Scotland on the 13th May, 1851. He was educated at Edinburgh, Glasgow, and New College, Oxford, and appointed to the Indian Civil Service in 1872, but he joined it only in 1874. He served in the Punjab as Assistant Commissioner, District Judge and Deputy Commissioner until his retirement in 1905. Shortly before his retirement he was acting for the Curator of the Herbarium, Royal Botanic Garden, Calcutta, during his absence. He made extensive collections in the Western Punjab, whose flora he knew very intimately, and only to a lesser extent in the neighbourhood of Dalhousie and Simla and in the Gangetic Plain. After his return to England he settled at Kew devoting most of his time to the working out of his collections and the preparation of a Flora of the Punjab, which he had undertaken to write. Ill-health interfered much with the progress of the work which never got beyond the initial stage. A few years ago he moved to Acton, where he died rather unexpectedly.

J. R. Drummond was a man of unusual versatility and unbounded enthusiasm for botany, in the field as well as in the herbarium. He was endowed with a remarkable memory and decided linguistic gifts, and possessed a many-sided knowledge, which he was always ready to place at the disposal of his friends and fellow workers. Practically all his publications fall into the time after his retirement. They are not numerous and consist mainly of descriptions of new plants, among them the new genus *Chamydites* (Compositae), and critical notes on "Grewias of Roxburgh," in this Bulletin (1911). An extensive paper published (with Prain) in the Land Records and Agriculture, Bengal, 1905, and reprinted in the Agricultural Ledger, 1906, was devoted to the Agaves and Furcroyas of India. In connection with his studies in the latter genus he also produced "Literature of *Furcraeae*, with a synopsis of the known species" which appeared in the Report of the Missouri Botanic Garden for 1907.

Robert Allen Rolfe.—In the Kew Report for 1880 Sir J. D. Hooker, referring to the Herbarium, wrote:—"Mr. R. A. Rolfe, an advanced gardener in the Royal Gardens, was appointed Second Assistant . . . after a public competition, conducted by the Civil Service Commission." Rather more than forty years have elapsed since that announcement was made. Both the author and the subject of it have been removed by the hand of death. The young gardener, mainly dependent on his own ability, industry, and perseverance, became in course of

time a botanist of distinction and the recognised authority of his day and of his country on the large and interesting family *Orchidaceae*. Mr. Rolfe arrived at the age of retirement last May, but though then 65 he seemed to be as vigorous and active as many a man considerably younger. In order that he might apply himself to some special work on his favourite group, an extension of service for one year was granted. There was good reason to hope that for many years to come, after his indefatigable official career was ended, he would be able to pursue the studies to which he had already devoted the best part of his life. However, at Christmastide last year his health suddenly failed, and after many weeks of illness, due it was eventually ascertained to a cerebral tumour, he passed away on April 13th, to the great grief of his family and friends. On April 18th, in the presence of a company which included many of the permanent Kew staff, he was laid to rest in Richmond Cemetery. Thus we have had the sad experience—the first of its kind in the history of Kew since the time of Sir William Hooker—of losing by death an old member of the established staff while still on active service. Many civil servants engaged in scientific or literary work anticipate retirement as an opportunity for undertaking or continuing some investigation or study which the pressure of official duties and routine had not permitted. Their leisure is spent in activities that have resulted in numerous valuable contributions to knowledge. Not a few of these contributions have come from Kew men in retirement, which happily in so many instances has been prolonged. We could expect from our knowledge of Mr. Rolfe's habits and character that, had his life and health been spared, he would have attempted and achieved during the next few years a great amount of useful work. While deeply indebted to him for his many and distinguished services, and deploring the loss of the rich store of special information he had acquired, we have great cause for regret in being deprived of further fruits of his labours. This year he had contemplated a journey to Central America, mainly in the interests of orchidology, and a grant in aid had actually been voted by the Government Grant Board of the Royal Society. A visit to Vienna had also been projected, the purpose of which was to consult Reichenbach's Herbarium preserved in the Hofmuseum. The twenty-five years during which the collections comprising that Herbarium were to remain sealed up, as directed by Reichenbach in his will, terminated on May 5th, 1914. The war intervening it had not been possible for Rolfe to go to Vienna as soon as the collections were accessible, but detailed preparations had been made for the visit.

Robert Allen Rolfe was born at Ruddington, a village near Nottingham, on May 12th, 1855. He first came to Kew on April 7th, 1879, after spending some time in the Duke of Portland's famous gardens at Welbeck Abbey, Notts. He had a predilection for botany, and won the post in the Herbarium after an examina-

tion in which nine contested. His first published paper was on oak-galls, which he had observed in the Kew Arboretum. This appeared in the Entomologist for 1881, and was continued in the volume for 1883. So far as we have ascertained his earliest contribution to orchidology was a "Revision of the genus *Phalaenopsis*," which was published in the *Gardeners' Chronicle*, 1886, vol. xxvi. At that time we had no living English authority on the *Orchidaceae*. Lindley had been dead many years. The considerable work of identifying old species and describing new ones—and at a period too when it might be said that the cultivation of orchids had become a craze—was to a large extent in the hands of Prof. H. G. Reichenbach of Hamburg. He spent much time in this country and was in close touch with our orchid importers and cultivators, who made a practice of appealing to him for botanical assistance. In 1889 Reichenbach died, and the state of feeling that must have been produced when it was known he had disposed of his Herbarium can be more easily imagined than described. Intentionally or not a severe blow had been struck at Rolfe, who in the few years immediately preceding Reichenbach's death had taken much interest in orchids and had published several papers on them, besides the Revision above mentioned. The situation and how it was met is admirably explained in the *Kew Bulletin*, 1891, p. 193. Rolfe speedily became the English expert in orchidology, and a respected and trusted authority everywhere. During the quarter of a century in which Reichenbach's many types, often themselves the only existing clues that could be relied on for determining what he meant by his species, Rolfe and other botanists have described a great number of orchids supposed to be new. An examination of Reichenbach's Herbarium will, no doubt, reveal the fact that some of them were not new, but had been described and published in some fashion by Reichenbach himself; therefore, it is probable that many names which have become well-known will, in observance of the law of priority, have to be relegated to synonymy.

Rolfe's contributions to the literature of botany and particularly to that of the *Orchidaceae* have been very numerous and valuable. Within a few days of his death the 48th decade of his diagnoses of new orchids appeared in the *Kew Bulletin*. He elaborated the *Orchidaceae* for the Flora of Tropical Africa and the Flora Capensis (excepting the tropical Brownleeas and Disas, which were dealt with by Mr. N. E. Brown) and for the Index Florae Sinensis. He published many papers on the family in the *Kew Bulletin*, the Journal of the Linnean Society, the *Gardeners' Chronicle*, and in other periodicals; and all the descriptions of species in the Botanical Magazine since 1905, and a few before that year, were by him. He assisted the late Mr. Sander of St. Albans with the two volumes of the second series of the magnificent "Reichenbachia"; edited for some years the English edition of "Lindenia," and in 1893 founded

The Orchid Review. This periodical, which must have proved a great boon to orchidologists, appeared continuously till the close of last year, and has therefore a longer history than any other of its kind. He edited and to a large extent wrote the twenty-eight annual volumes published. The work connected with *The Orchid Review* and much of a like character, performed in the intervals between official hours, must have taxed him to a degree that very little time could have remained for other interests or for recreation. He had valuable help in preparing *The Orchid Review* for the press and in distributing it on publication from Mrs. Rolfe and his daughter.

Rolfe's work was by no means limited to the *Orchidaceae*. He investigated many widely different groups of plants, and his interest in plant-galls, especially those of the oak, persisted to the end. The families *Myoporinaceae* and *Selaginaceae* as well as the *Orchidaceae*, were prepared by him for the African Floras, and he paid some attention to the *Rosaceae*, more particularly to the genera *Rosa* and *Rubus*. During the first few years in the Herbarium he collaborated with Vidal in determining the large collections made by Cuming and by Vidal himself in the Philippine Islands. More recently he spent much time on the material which arrived, in almost embarrassing profusion, from the same islands, and on F. C. Lehmann's collection from Colombia and Ecuador. Preparing matter for publication, though an important, is a relatively small part of the work of the Herbarium Staff. Rolfe had a liberal share of the routine duties to attend to, and on every side we find the trace of his hand. He was extremely careful as to details; an identification attributable to him may, as a rule, be trusted.

The problems connected with the hybridisation of plants proved alluring to Rolfe, and he devoted much careful study to them. He took part in the conferences on hybrids organised by the Royal Horticultural Society in 1899 and 1906, and with Mr. C. C. Hurst produced in 1909 "The Orchid Stud Book: an enumeration of hybrid orchids of artificial origin,"—a most painstaking work. He acted as judge at the Ghent Quinquennial Exhibitions of 1898, 1903 and 1908, and at the Florence International Exhibition of 1911.

Rolfe was elected an Associate of the Linnean Society in 1885 and an Honorary Fellow and Member of the Scientific Committee of the Royal Horticultural Society in 1906. From the last-named Society he received the Victoria Medal as recently as February last; about the same time he was also awarded the Gold Medal of the Veitch Memorial Trust Fund, and in 1917 the Medal of L'Académie Internationale de Botanique.

Portraits of Rolfe have been published in the *Gardeners' Chronicle* of February 12th and April 23rd, 1921 (the same portrait in both issues), and in the Journal of the Kew Guild, 1911–12. Naturally several species of orchids and other plants have been named in compliment to him; also the genera *Rolfea*, Zahlbruckner, an orchid from British Guinea, which Rolfe had

himself called *Jenmania*, a name already used for a genus of lichens, and *Allenrolfea*, O. Kuntze (= *Spirostachis*, S. Wats.), of the family *Chenopodiaceae*.

Partial deafness of long standing was no doubt answerable for an attitude of reserve and detachment which was more or less characteristic of Rolfe; to some extent he possibly derived advantage from this affliction, for he seemed to be able to proceed tranquilly with his work in circumstances that would have caused serious interruption to others. Though precluded by his official position and the many duties belonging to it from taking an active part in local affairs, he was always interested in them, and he held very pronounced political views. He had a liking for music and for many years was a member of the choir of St. Luke's Church, Kew Gardens. He married in 1881 Miss Caroline Berkeley Thatcher, the eldest daughter of Mr. W. Thatcher of Clifton and Cheddar. Mrs. Rolfe survives, with one daughter and three sons. The success of his life is in no small measure due to the happiness of his home. He was an earnest, conscientious and upright man. He was deeply attached to Kew; its interests were ever present to his mind and he lost no opportunity to serve them to the best of his ability. His colleagues and friends and all who were acquainted with him respected him in the highest degree, and those who knew him intimately regarded him with genuine affection.

The Indian Botanical Society.—We notice that in pursuance of a resolution passed by the Botany Section of the Indian Science Congress, at the Nagpur Meeting in January, 1920, a Society called "The Indian Botanical Society" has been founded for uniting the Botanists and Promoting the Botanical Interests of India.

The actual constitution of the Society took place on December 6th of last year, when the following officers were declared to have been elected to serve until the annual meeting in January, 1922 :—

Winfield Dudgeon, Ph.D., Ewing Christian College, Allahabad City - -	President.
W. Burns, D.Sc., College of Agriculture, Poona - - - - - - -	Vice-President.
Shiv Ram Kashyap, M.Sc., Government College and Panjab University, Lahore - - - - - - -	Secretary-Treasurer.
Birbal Sahni, D.Sc., Panjab University, Lahore - - - - - - -	Councillor for two years.
Rai Bahadur K. Rangachari, M.A., L.T., Agricultural College, Coimbatore -	Councillor for one year.

The aims of the Society are stated to be :—

(1) To promote a feeling of fellowship among botanists, and draw them together for mutual benefit.

(2) To improve the quality and content of botanical instruction in colleges, universities, and other institutions.

(3) To encourage and promote research in botany.

(4) To provide a central exchange.

(5) To make available to members the scattered and insufficient botanical literature that reaches India.

The Society does not contemplate starting a botanical publication of its own, but encourages members to support the Journal of Indian Botany.

The Charter Members of the Society number 81.

Botanical Collections in Herbarium, Kew.—The entries on p. 36, lines 5–8 from top, of the *Kew Bulletin* for 1901, should be amended to read as follows :—

Johnston, Surg.-Maj. Henry Halcro. 1880–90. Afghan. Egypt, Orkney, Sierra Leone, Nubia, Mauritius. 462.

Johnston, Sir Harry Hamilton. 1883–97. Angola, Congo, Kilimanjaro, Cameroons. 1334.

A new European Plant.—A few weeks ago, Kew received from Mr. C. G. Field-Marsham, of Tunbridge Wells, a dried specimen of a plant which was collected on the steep cliffs of Cape Hellas, Gallipoli. It is apparently a form of *Gonocytisus angulatus*, Spach., a species new to the European flora. This plant is widely distributed in Asia Minor and is common in some parts. Specimens preserved in the Kew Herbarium indicate that the plant is found in the following areas : Bithynia, Troad, near Smyrna, Magnesia and Sardis, Caria, Isauria and Cilicia. No record of its having been previously discovered outside Asia Minor has been found. A good figure of the species is given in Sibthorp's Flora Graeca, tab. 672, under the name *Spartium angulatum*, and a description will be found in Boissier's Flora Orientalis, II, p. 47. W. B. T.

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